

LIFE HISTORY OF FALCARIA BILINEATA Packard.

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The moths emerge from hibernating pupæ and deposit eggs early in June on the white birch (*Betula papyrifera*). The eggs are laid from two to four together or singly on the bark of the smaller twigs, usually in a row in line with their longest diameter. On hatching, the little larvæ separate, and each proceeds to the tip of a leaf where it takes up a position on the upper side, resting on the brown portion of the leaf which it soon produces by eating away the upper epidermis and parenchyma. Here the first molt takes place. After it, the larva eats the whole leaf, often resting on the same brown patch as it did in the first stage; but soon it sits upon the green part of the leaf or goes to a new leaf. In its usual position the head and tail are held up at an angle of 45 degrees, the larva being supported on its abdominal feet. In the final stage, when large, the larva usually rests upon a twig or branch. At maturity it forms a slight cocoon of yellow silk between some leaves and is soon transformed to a pupa covered with a white bloom. There are at least three broods annually. The egg is elliptical, flattened above and below or a little concave. The surface is marked off faintly into irregular quadrangular areas by slightly raised latticed lines and the whole thickly covered with little round regular pits, as many as 10 in each area. Dimensions, .8x.6x.4 mm. The larva throughout its five stages is of a rusty-brown color variegated with white. It becomes paler as it gets older and the mature larva is of a creamy color marked irregularly with white and brown. The surface of the body is somewhat rough at first, the tubercles rather enlarged and later tubercle I becomes distinctly enlarged, forming on joints 3 and 4 a short horn-like process subdorsally. The anal feet are wanting; but there is no long process as in *Orecta rosea*; on the end of the anal plate there is only a short upturned rounded process. In the first stage the arrangement of the tubercles is normal, except that tubercle VI is absent as in the majority of newly hatched larvæ. After the first moult several secondary setiferous tubercles appear, the most prominent being one near tubercle III, situated below tubercle III (not in line with it as in *Platypteryx arcuata*) and partly behind the spiracle. The measurements for the width of head for the five stages are: .3 mm., .6 mm., 1.05 mm., 1.5 mm., 2.0 mm. If these be compared with the calculated series, viz. .33, .60, 1.10, 2.0, ratio .55, it will be seen that an extra stage has been interpolated between the two last stages corresponding to the calculated number 1.48, derived with the ratio .74 (= the square root of .55) compare with this the condition in *Nadata* and *Edema*. (Psyche, Oct. 1892, pp. 337—338.)